

REMARKS

Overview

In the Office Action under reply, claims 1-3, 6-25, and 28-33 were examined, claims 4, 5, 26, and 27 having been canceled previously. (Applicants note that claims 5 and 27 are identified in the Action as pending, but were, in fact, canceled previously.) Applicants acknowledge with appreciation the Examiner's withdrawal of the three rejections under 35 U.S.C. § 112, as set forth in the Office Action dated September 13, 2007. The claims stand rejected as follows:

- (1) claims¹ 1-3, 6-25, and 28-33 are rejected under 35 U.S.C. §112, first paragraph; and
- (2) claims 1, 2, 13, 15, 19-21, and 23 are rejected under 35 U.S.C. §102(b) as anticipated by Mascagni et al. (1987) *J. Chem. Soc. Perkin Trans. II* pp 323-327 ("Mascagni"). In addition, claims² 3, 6-12, 14, 16-18, 24, 25, and 28-33 are rejected to the extent they read on a rejected base claims.

The rejections and objections are overcome in part by the amendments made herein, and are otherwise traversed for at least the reasons set forth below.

Amendments to the Specification

With the amendments made herein, paragraph [0023] is amended to recite sulfonic acid. This amendment is supported by the incorporation by reference of Tsaprailis et al. (1999) *J. Am. Chem. Soc.* 121:5142, which appears in paragraph [0055] of the original specification (paragraph [0039] of the original specification provides that all publications mentioned in the specification are incorporated by reference in their entireties). In paragraph [0055], the specification states that "acid/base chemistry may provide an alternate route for cleaving peptides in the gas phase," and cites Tsaprailis et al. as providing supporting disclosure. Tsaprailis et al. discloses that cysteic acid may be used in the gas phase dissociation of protonated peptides (*see* Tsaprailis et al., Abstract). Tsaprailis et al. also specifically mentions sulfonate groups (i.e., deprotonated sulfonic acid) in Figure 9C and the accompanying text on page 5150, col. 2. From these references, the skilled artisan would have understood that sulfonic acid groups are another example of the acid groups intended to be included in paragraph [0023] of the original specification.

¹ The Action also identifies canceled claims 5 and 27 as within the rejected claims.

² The Action also identifies canceled claims 5 and 27 as within the rejected claims.

Rejection under 35 U.S.C. §112, first paragraph

Claims 1-3, 6-25, and 28-33 stand rejected under 35 U.S.C. §112, first paragraph, as "failing to comply with the written description requirement" (Action at page 2). The Action states that the limitation of sulfonic acid in the claims is essential material that may not be incorporated by reference to a journal article.

First, applicants note that claims 3 and 24 are limited to benzoic acid acidic groups, and are therefore not properly included in the rejection. Accordingly, applicants respectfully request withdrawal of the rejection with respect to claims 3 and 24.

Second, with respect to claims 1, 2, 6-23, 25, and 28-33, applicants have overcome this rejection by incorporating a recitation of sulfonic acid into the specification. As described above, this incorporation is supported by the reference to Tsapraillis et al., and no new matter is introduced. In light of this amendment, applicants respectfully request withdrawal of the rejection.

Rejection under 35 U.S.C. §102(b)

Claims 1, 2, 13, 15, 19-21, and 23 are rejected under 35 U.S.C. §102(b) as anticipated by Mascagni. This rejection is traversed.

The Examiner states that "Mascagni et al teach complexing alanine tosylate (toluene-p-sulfonic acid) with crown ether in the same manner as recited in claims 1, 2, 13, 15, 19, 20, 21 and 23" (Action at 3). Applicants respectfully disagree with this interpretation of Mascagni and the instant claims.

The instant claims are directed to a method comprising reacting an amino acid, a peptide, or a protein with a second compound comprising: (1) at least one crown ether group; and (2) a moiety selected from acidic groups, transition metal binding groups and diazo groups.

Mascagni is directed to the "synthesis of amino acid complexes with the cyclic polyether 18-crown-6 and their solubility properties in organic solvents" (Mascagni, Abstract). Indeed, Mascagni states that some authors have exploited "the complexation ability of crown ethers for selective acylation of secondary amines in the presence of primary ones" (Mascagni, p. 323, col. 1). However, Mascagni uses unmodified 18-crown-6. Thus, and as explained in more detail in the following paragraph, Mascagni does not disclose reacting a second compound comprising a crown ether and another moiety with a first compound.


The Experimental section of Mascagni (i.e., pages 323-325) describes the methods that are employed therein. Mascagni indicates that 18-crown-6 was "purchased... and used without further purification" (Mascagni, p. 323, col. 2). The crown ether is added to a solution in order to form a complex with amino acids such as alanine hydrochloride. The complexes are then reacted with dicyclohexylcarbodiimide (DCC) in order to form amino acid oligomers. At no time, however, is an amine-containing compound reacted with a compound containing the following two moieties: (1) at least one crown ether group; and (2) a moiety selected from benzoic or sulfonic acid, diazo groups, ethylenediamine, propylenediamine, butanediamine, hexamethylenediamine, N,N-dimethylethylenediamine, diethylenetriamine, dipropylenetriamine, triethylenetetramine, tetramethylethylenediamine, N,N-dimethylpropylenediamine, N,N,N'-trimethylethylenediamine, N,N,N',N'-tetramethyl-1,3-propanediamine, hexamethylenetetramine, diazabicyclononane, sparteine, phenantroline, 2,2'-bipyridine and neocuproine, as required by the pending claims. In fact, Mascagni does not disclose any compounds containing the two moieties mentioned above. Since Mascagni does not disclose such compounds, Mascagni does not teach every element of the pending claims, and is not an anticipatory reference under 35 U.S.C. § 102. Applicants respectfully request withdrawal of the rejection.

Claims 3, 5-12, 14, 16-18, 34, 35, and 27-33 are listed as rejected "to the extent they read on a rejected base claim" (Action at 3). In light of the arguments presented herein, applicants assert that these claims are dependent upon an allowable base claim. Withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicants submit that the claims of the application are in condition for allowance. Applicants respectfully request withdrawal of the rejections, and prompt issuance of a notice of allowance. If the Examiner has any questions concerning this communication, or would like to discuss the application, the art, or other pertinent matters, a telephone call to the undersigned would be welcomed.

Respectfully submitted,

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